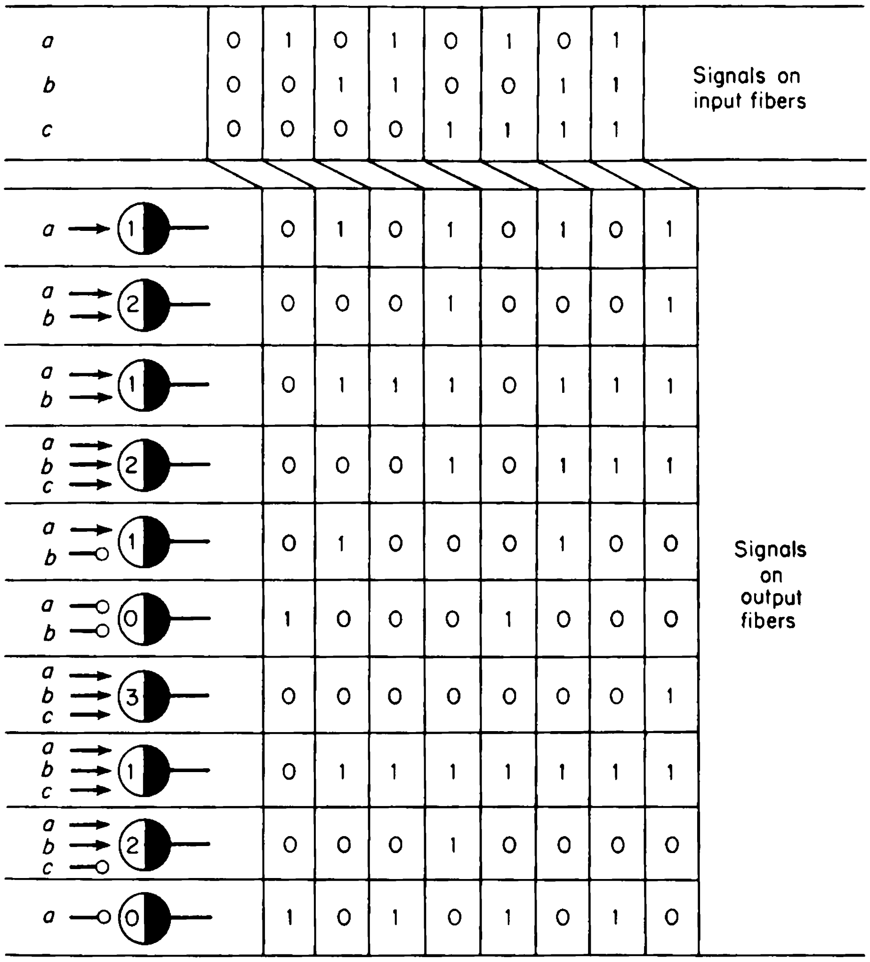

Fig. 3.1-2. Behavior of some cells. (The response columns are displaced to show the always-present delay.)

threshold. This is equivalent to having the inhibition signals increase the threshold. McCulloch, himself, [1960] has adopted this model for certain uses.[2]

(3) *Delays.* We assume a standard delay between input and output for all our cells. In more painstaking analyses, such as those of Burks and Wang [1957] and Copi, Elgot, and Wright [1958], it has been found useful to separate the time-dependency from the other "logical" features of the cells and to introduce special time-delay cells along with instantaneous logical cells. The use of instantaneous logical cells forces one to restrict the ways in which the elements can be connected (lest paradoxical nets be drawn). We will avoid them except briefly in section 4.4.1.

(4) *Mathematical Notations.* In the original McCulloch-Pitts paper [1943], the properties of cells and their interconnections were represented